Can Web 2.0 Improve Our Collaboration?

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Collaboration is "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration can occur by mail, over the phone lines, and in person. But **the true medium of collaboration is other people."**

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The overhead projector was invented in 1944, but it was not until the 1960s that it became a mainstay in classrooms across the country. Some of the most senior members of our profession who are reading this article may remember attending a workshop on how to better use transparencies to improve classroom learning. Once again, we find ourselves faced with a new classroom technology. Clearly, the latest technologies are more advanced than the old overhead projector and transparencies. Today's faculty members (elementary through college) are using podcasts, wikis, chat rooms, online curricula and virtual realities to help students become successful in the classroom.

Technology has helped to improve student learning by making the curriculum interactive and engaging. However, has technology affected our research in the same way? That is, has technology enabled us to better collaborate through data sharing and dissemination of our findings? As the importance of assessment and accountability of student learning becomes more pervasive in education, we should be proactive in examining ways to improve our research given the latest developments in technology.

What is collaboration? What is this new Web 2.0 technology? Can it be used to foster such research collaboration in career and technical education (CTE)? Can it be utilized to achieve our research agenda? In this article, we will provide a framework of collaboration using Web 2.0, and present some possible examples of its application. We hope that this article will start a discussion to answer the previous questions.

What is Collaboration?

Collaboration is not only a current buzzword in science research but in academia as well. However, this new emphasis in academic circles may have permitted educators to focus on it as a product instead of a process. Schrage (1990) defined collaboration as "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own" (p. 40). Schrage further writes, "Collaboration can occur by mail, over the phone lines, and in person. But the true medium of collaboration is other people" (p. 41). From this definition, we can be sure that we have been collaborating, but can we increase the degree of our collaboration to further our knowledge in our field?

Theory with respect to collaboration can be traced back to Vygotsky, who viewed learning as a social process in which a teacher guides a student through learning activities that may only be achieved by the student with the help of the teacher (Montiel-Overall, 2005).

It is in this case that knowledge is co-constructed. The onset of mass collaboration through utilization of the Internet has given researchers an opportunity to re-examine collaboration theory for the purpose of helping practitioners understand the process.

Ghazawneh (2008) examined theories revolving around mass collaboration and suggests a process to foster mass collaboration. The process includes the following modules: pre-adoption—identification and planning; adoption—marketing the product to stakeholders; and post-adoption—maintenance and evaluation of performance. During pre-adoption, the group approves of a project based on the needs of the organization, goals to achieve, and limitations on the ability of mass communication to achieve the organization's goals. Next, planning is used to determine the process for achieving the organization's goal. During planning, the organization should focus its concern on four aspects critical to the success of collaborating: type of technology to use; the vendor that can provide this technology; the group dynamics of the team; and the structure (or format) to how individuals will work together, as well as the openness and sharing that will occur during collaboration. Ghazawneh argues that it is best to find successful collaboration projects to serve as a model. Once the collaboration is implemented, it can be marketed to stakeholders. However, the work is not done; Ghazawneh suggests that the collaborators, the network and the newly created knowledge all need to maintain quality.

Collaboration and Technology

What is Web 2.0 technology? According to Wikipedia (an informally peer reviewed source of information), Web 2.0 is "a living term describing changing trends in the use of World Wide Web technology and Web design that aims to enhance creativity, information sharing, collaboration and functionality of the Web" (Web 2.0, n.d.). A key characteristic of Web 2.0 technology is the ability of the end user to edit or create information provided by another user. These second generation Internet technologies have opened new doors for educators, researchers and scientists to share information, ideas and even data to further our understanding of specific topics. The use of open access Web sites, blogs, podcasts and virtual realities can offer new opportunities to further CTE more than at any other time in our history.

However, with the excitement surrounding these new technologies it is important to note there are just as many barriers to its use. Who owns the information if it is open access? Will tenure committees count information that is openly peer reviewed? It takes time to learn new technology, do educators have time to add this to their plate? No matter what the inhibitors are to adopting new collaboration tools, it is important that we start exploring it. Old tools like e-mail and face-to-face collaboration do not allow ideas to be fully shared and explored by multiple people. In Figure 1, we demonstrate how traditional e-mail collaboration on a document works versus such collaboration using new Web 2.0 technologies. Wiki collaboration is much more efficient and allows for more idea sharing.

Tapscott & Williams (2006) discussed in their popular book *Wikinomics* about the idea of "peering" in which individuals use these new Web 2.0 opportunities to create new information-based products. One example of peering is the phenomenon of open source software technology. Many of you may be familiar with some open source software available: Firefox (Web browser), OpenOffice (word processing, spreadsheets, etc.), Linux (operating system), and Apache (Web server). These are just a few of the open source applications available free of charge for anyone to use. In open source software all of the programming code is available to users who are encouraged to modify and improve the programs. The only rules are that users must make available their improvements to everyone else so all may benefit from the improvements, and that no one can sell the program, *i.e.*, capitalistic entrepreneurs are not allowed. These rules were established so that everyone using the software can benefit from the input of the thousands of people who are tinkering with and improving the program (Friedman, 2005).

While several software companies have adopted this form of "peering,"

Figure 1. e-mail versus wiki collaboration

E-mail Collaboration

Wiki Collaboration
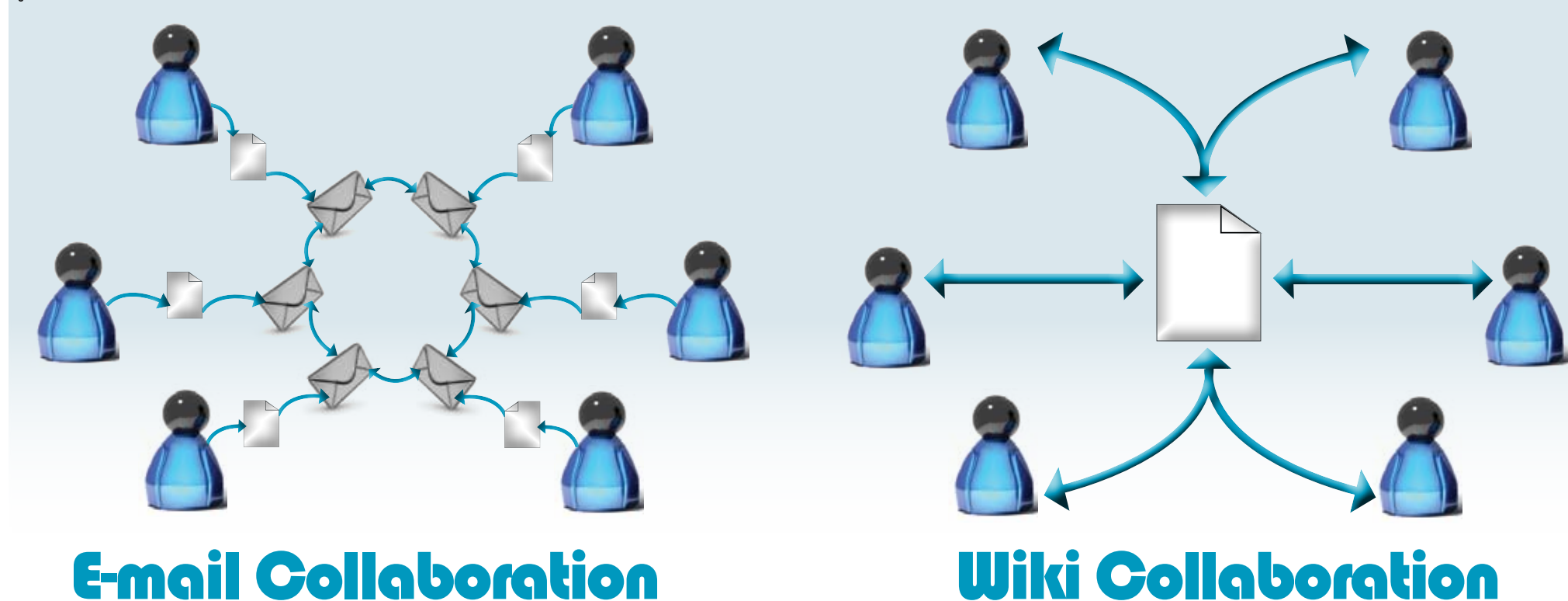
several scientists are also collaborating in this new way to further scientific discoveries in a quick manner. With all peer reviewed research there is lag time from when the data is analyzed until it is finally printed in a journal and shared with the world. However, several open source journals, such as the *Journal of Biomedical Discovery and Collaboration* (**www. j-biomed-discovery.com/**), have moved to a format which still keeps intact the traditional peer review process, but allows researchers to share their findings quickly with mass audiences who can use it. Other organizations like ResearchGate (**www.researchgate.net/**) are setting up open access sites where researchers can collaborate and share data. In a recent initiative, they encouraged research on Amyotrophic Lateral Sclerosis (ALS, or Lou Gehrig's disease) to be posted to offer an ongoing ALS conference online, aimed at speeding up the discovery of new treatments and a possible cure. With

such collaboration, the opportunities for new discoveries are endless.

Current and Future Collaboration Ideas for Utilizing Web 2.0 Technologies

To be certain, we do currently collaborate in the education profession. Workshops, seminars, and many types of formal and informal professional development allow educators the opportunity to network, share ideas and collaborate with one another. Through these formal and informal interactions we share and borrow ideas, improve our lessons, develop experiential learning activities, and advance the learning experience for our students. However, as stated above, Web 2.0 technologies are another outlet being utilized by many of us to improve our teaching in an efficient and collaborative way. For example, ACTE developed a Communities of Practice Web site that allowed members to share information with each other in

any of 12 different communities. eXtension (**www.extension.org/**) is another example of how agricultural educators have been collaborating. This site was established to allow experts around the country to share and develop resources for adult education. Still, can we do more to further our research and our knowledge of successful teaching practices?

Could similar communities be developed that allow for collaboration in other areas as well? Can teachers post their best ideas for instruction (*i.e.*, lessons, activities, games) to a Web 2.0 site and share their best practices with other teachers? Likewise, can researchers collaborate with classroom practitioners in a similar manner? Can classroom teachers download questionnaires, administer them to their students, and then post the results on a Web site for researchers to analyze? Is there a way to reward teachers who participate in this?

The implementation of these ideas

requires us to think differently about our current collaboration systems. For example, if someone contributes to a wiki article, which is later edited in a way that the original work is no longer recognizable, does the original author get credit? For educators in higher education how can they count this work toward tenure if it is changed? Should we be developing our own online social networks that keep conversations going after conferences and workshops? Will such networks allow for more collaboration and sharing among new and established teachers, among new teachers and higher education programs, and among researchers in our field? How can we share our knowledge and research successfully with a larger audience?

As technology continues to improve, we will continue to be challenged to think about how we educate and how we research. How can we share more, do it more efficiently, and still get credit for the work we do? With all good collaboration,

the discussion must start somewhere and continue with input of others. We ask that you join us in this conversation in shaping our future through a collaborative wiki at: **http://actecollaboration. pbwiki.com**. ⊤

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